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Problem 14: Homeward Bound

Points: 30

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Problem Background

After a long delay figuring out what route he should take, the travelling salesman has just finished his journey and has collected orders from customers all along the way. He finished his trip at his company's warehouse, and now he wants to deliver all of his customer's orders on the way back home. To make sure he doesn't miss anyone, he's planning to take the same trip in reverse order. Unfortunately, as he's walking towards the ticket counter at the airline, he trips, and scatters his used boarding passes everywhere! He needs your help to get the boarding passes back in the correct order so he can reconstruct his journey and figure out how to get back home.

Problem Description

Your program will be given several pairs of cities, indicating a departure and arrival

point for each of the salesman's boarding passes. These pairs will be out of order. You must reconstruct his original journey by determining the correct order of boarding passes, then print the route he should take back home (the original route in reverse order).

Sample Input

The first line of your program's input, **received from the standard input channel**, will contain a positive integer representing the number of test cases. Each test case will include the following lines of input:

- A positive integer, **X**, indicating the number of boarding passes
- **X** lines, each listing two city names, separated by spaces. The first city is the departure city for that boarding pass; the second is the arrival city. City names will consist of upper and lower-case letters and underscores (_).

Page 2

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2
4
Fort_Worth Denver
Washington Toronto
Orlando Fort_Worth
Denver Washington
5
Riyadh Singapore
Madrid London
Chicago Madrid
Berlin Riyadh
London Berlin
```

Sample Output

For each test case, your program must output each city the salesman should visit on the way home, one city per line, starting with his original final destination.

Toronto
Washington
Denver
Fort_Worth
Orlando
Singapore
Riyadh
Berlin
London
Madrid
Chicago